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ABSTRACT

In order to investigate elementary school students' understanding of historical time, this study conducted open-ended interviews with 58 children in kindergarten through sixth grade. The students were asked to place nine illustrations from various periods of American history in chronological order and to talk about the reasoning behind the order they chose. The paintings and photographs consisted of scenes broadly representative of a particular era, such as the colonial period, the 1920s, or the 1960s. The study found that even the youngest children made some basic distinctions in historical time and that those distinctions became increasingly differentiated with age. Dates, however, had little meaning for children before third grade; and although third- and fourth-graders understood the numerical basis of dates, only by fifth grade did students extensively connect particular dates with specific background knowledge. At all ages, children's placement of most pictures revealed substantial agreement with each other and with the correct order. Two appendixes contain copies of the illustrations used in the study and the interview protocol. (MDM)

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Historical time

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"Back when God was around and everything":
Elementary children's understanding of historical time

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Abstract

In order to investigate elementary children's understanding of historical time, we conducted open-ended interviews with fifty-eight children from kindergarten through sixth grade. In order to overcome the limitations of previous research in this area, we asked children to place pictures from various periods of American history in order and to talk about their reasoning. We found that even the youngest children made some basic distinctions in historical time and that those became increasingly differentiated with age. Dates, however, had little meaning for children before third grade; and although third- and fourth-graders understood the numerical basis of dates, only by fifth grade did students extensively connect particular dates with specific background knowledge. At all ages, children's placement of most pictures revealed substantial agreement with each other and with the correct order; this agreement indicates a significant body of understanding of historical chronology. History instruction in the elementary grades, then, might productively focus on helping students refine and extend the knowledge they have gained about history; information which relies upon dates, however, is unlikely to activate their temporal understanding.

“Back when God was around and everything”:

Elementary children’s understanding of historical time

Despite the frequency with which educators and historians assert that an understanding of time and chronology is essential to learning history, little research has been conducted on the development of children’s perception of historical time. Moreover, the small body of research which does exist—most of it over three decades old—often suffers from inadequate conceptualization or reporting; in particular, much of this research has focused on the inability of young children to understand the meaning of dates and has thus led to the unfortunate conclusion that they are incapable of learning history. Thornton and Vukelich (1988) have noted the serious limitations of these findings and have called for a reconceptualization of children’s understanding of time.

Our research responds to that call by investigating the way children make temporal distinctions among visual images—rather than by attempting to quiz them on their knowledge of dates or famous people. In open-ended interviews with children from kindergarten through sixth grade, we found that even the youngest make basic distinctions in historical time and that these become increasingly differentiated with age. Perhaps most importantly, this research suggests that children develop important historical understandings prior to—and to some extent independent of—their use of dates and other aspects of the adult temporal vocabulary.

Research on understanding of historical time

In their review of research on children's understanding of time, Thornton and Vukelich (1988) note the dearth of work specifically focusing on *historical* time, which they define as the ability "to depict a person, place, artifact, or event in the past using some form of time language" (p. 70). Most research on children's temporal understanding has focused on perceptions of the duration of time ("How long would it take you to walk around this room?") or understanding of clock and calendar time ("Which is longer, a second or a minute?" "Name the days of the week"). Indeed, many researchers consider skills involving personal, calendar, and clock time prerequisite to an understanding of historical time.

As far as we are aware, however, no one has established any empirical or theoretical connection between the ability to name the days of the week in order (or any other aspect of personal, clock, or calendar time) and the ability to make temporal distinctions in the past. We see no necessary reason to think that a child must be able to name the months of the year before she can recognize that a picture of colonial America is older than one from the 1950s. The conflation of these different abilities has resulted in more confusion than clarity, and has led some researchers to limit their investigations of younger children to clock and calendar time and their investigations of historical time to older children (usually eight or above). In the absence of any explicit argument linking these abilities, we have chosen to focus solely on the limited research on historical time.

In their review of the literature, Thornton and Vukelich (1988) conclude that at ages eight and nine, children begin to master historical dates and are able to estimate how long ago events took place, to place events in sequence, and to associate dates with particular people and events; this mastery is complete by age

eleven, and from ages nine to eleven children begin to label periods of time such as "the Colonial era." These conclusions, however, are subject to three very serious limitations. As already noted, they are based on an extremely narrow body of research, some of it reported in only the most general terms. In addition, this work has ignored children younger than eight years old almost completely; as a result, we know practically nothing about their understanding of historical time. Finally, research has invariably taken dates, famous people and events, and conventionally named time periods as the index of understanding; consequently, while we know something about children's increasing ability to use the adult vocabulary of historical time, we know very little about their own categorizations of the past. This has resulted in a "deficit model" of children's understanding of history in which their temporal perspective is evaluated solely by its conformity to adult standards.

Oakden and Sturt (1922), for example, gave children between the ages of eight and twelve a variety of measures designed to measure their understanding of historical time; children were asked, for example, to order the names of famous people both when dates were and were not provided; to identify historical absurdities in reading passages; to answer questions testing their knowledge of particular periods; and to place pictures from different periods in order. Generalizations based on this research are somewhat tenuous, since findings were sometimes ambiguous or contradictory; nonetheless, two conclusions seem warranted. First, children assigned little meaning to dates and found it difficult to arrange them correctly; before age 11 in particular, children appeared to have little understanding of the meaning of dates. Second, younger children appeared to "lump together" all historical periods into an undifferentiated past which they characterized primarily as lacking the things we have now; Oakden and Sturt maintained that only by age 11 do children attend to subdivisions within the past.

Other researchers have reported similar findings. Bradley (1947), using measures similar to or identical to those of Oakden and Sturt, also found that children had a limited understanding of dates but argued that their understanding developed gradually, rather than showing a more sudden jump between ages ten and eleven. Friedman (1944a, 1944b) also found that children had little understanding of time words (especially dates) but that this understanding increased steadily across grades; he found the most striking gains in fifth and sixth grades. Friedman's work also provides some corroboration of Oakden and Sturt's claim that younger children lumped different periods into a single category—although this finding may have been determined at least partly by questions such as, "Tell me something that happened a long time ago."

These studies gauge children's understanding by comparing it to adult standards, and as a result find the youngest children's abilities lacking. Other work, however, provides more insight into the understanding of young children. West (1978, 1982) found that seven- to nine-year-olds were capable of recognizing historical pictures and placing them into an accurate sequence of "first," "last," and "in the middle." He argues that children at this age lack not a sense of time but a specifically *numerical* sense. Levstik and Pappas (1987) found that even second-graders knew something about both time and history and—echoing earlier findings—note that second-graders use broad categories such as "long ago," that fourth-graders divide these categories more finely, and that sixth-graders use categorical headings such as "the American Revolution."

These findings suggest the need for the kind of reconceptualization called for by Thornton and Vukelich. Rather than taking the arrangement of dates or the recognition of famous people and events as the hallmarks of historical time (and consequently dismissing children younger than eight), research should endeavor to

elicit the kinds of temporal understandings which children *do* have, and to examine the way in which these understandings change over time. While the people, events, and dates which adults categorize as historically important may constitute one element of children's understanding, it is unlikely to be the only one—and thus measures which are limited to the traditional content of school history are unlikely to reveal the full range of children's understanding.

As a first attempt at getting beyond the deficit model of historical understanding, we asked children from kindergarten through sixth grade to arrange a set of visual images from different periods of American history in chronological order and to talk about their reasons for placement. Our purpose was less to find out whether they could arrange the pictures correctly than to explore the kinds of temporal distinctions they make and how those distinctions change with age.

Method

Population

We collected data from fifty-eight children at seven grade levels (kindergarten through sixth grade) and from a variety of geographic settings (inner city, suburban, and rural) in northern and central Kentucky. We interviewed eight children in each grade (four females and four males) in kindergarten and grades four through six, and twenty-six children (twelve females and fourteen males) in the equivalent of grades one through three. (Most children in the latter group were in nongraded primary settings, and their grade-equivalence was obtained by matching their age to an approximate grade level.) Thirty percent of the children were African-American, and less than four percent were members of other racial minorities. Most children were from lower or middle socioeconomic backgrounds,

although a minority came from an upper-middle background. Except for kindergartners, all children were in classes with ongoing social studies programs, and teachers were asked to identify children representing the range of performance in social studies in their classrooms.

Materials, task, and procedure

Working from several sets of historical pictures, we selected those which we thought most adults easily could arrange in chronological sequence. In general, we chose pictures we thought would closely match well-known periods of American history—such as the Colonial era, the Depression, the 1950s—and which contained a variety of clues that might be considered salient (including, for example, fashion, technology, architecture, and social interaction). We limited our selections to post-contact American history in order both to simplify our task and to help insure that participants would have some familiarity with their content. After selecting several sets of such pictures, we tested them with approximately ninety college students who had completed their general studies requirements (including at least one, and usually two, university history courses). We narrowed the pictures to one set, based on the following responses from these test students:

- Traditional political and diplomatic images (for example, war scenes or presidents) generated little conversation or debate about placement—they were either known or not known—and thus were eliminated as unproductive for this initial study.
- Images that included racial or ethnic diversity were extremely difficult for test students to place in time, and thus were eliminated in favor of a narrower set of images against which further work, using more diverse images, may be compared.

- Twentieth-century images and those more closely spaced in time generated more richly detailed conversation and revealed a wider range of associations beyond those immediately present in the pictures; as a result, we included several pictures from the twentieth century in our final set.

We chose our final set, then, based largely on the extent to which they matched historical periods which adults consider recognizable; we made this decision because we wanted to maximize children's ability to complete and discuss the task. Two disadvantages are readily apparent, of course. On one hand, the task omits images which, as educators, we may consider important. The task would not necessarily reveal very much, for example, about children's understanding of changes in minority relations, gender roles, or politics. On the other hand (and somewhat ironically), it also partly reproduces a limitation we have criticized in previous studies—namely, evaluating children on their ability to conform to adult expectations. We used more images from the twentieth century, for example, because as adults we have more categories for the twentieth century than others: most of us undoubtedly have more sharply differentiated mental images of the 1940s, 1950s, and 1960s than we do of the 1740s, 1750s, and 1760s. We cannot claim, then, simply to be allowing children's temporal understanding to emerge completely unfettered by our adult expectations.

In essence, our task stakes out a middle ground, chosen partly for pragmatic and partly for theoretical reasons: we presented children with images whose chronological order adults generally recognize but which do not necessarily correspond to standard curricular or academic expectations. Future research might productively explore children's responses either to pictures which include important curricular content (for example, from different periods of the African-American

experience in North America) or which are chosen completely at random, without regard to adult chronological distinctions. For the purpose of this initial study, however, we chose images that we thought would result in the greatest amount of recognition. We then reproduced the set of nine images as black and white glossy photographs, individually mounted them on heavy stock poster board, and laminated them so that children could handle the pictures without damaging them. (See Appendix A.) The list below provides the order in which we presented the pictures, the actual date of each, and brief descriptions of their contents; expressions in brackets denote the shorthand descriptions which we have employed in this paper.

1a	1956	Teenagers at a drive-in restaurant	[1950s]
1b	1872	Family and covered wagon on the prairie	[West]
2	1924	Men and women in bathing suits in front of a car	[1920s]
3	1837	Political cartoon of an urban scene	[Antebellum]
4	1939	Family reading and sewing at home	[Depression]
5	1772	Fort with soldiers and Native American Indians	[Colonial]
6	1899	Schoolroom with teacher and children	[1899]
7	1993	Large, modern building with cars and people	[Modern]
8	1967	Demonstrators and police at a university protest	[1960s]

We interviewed children by using an open-ended protocol. (See Appendix B.) After explaining the interview process and obtaining their assent, we showed children the West and 1950s picture simultaneously and asked them to place the one from "longest ago" on one side, and the one from "closest to now" on the other. We presented each of the other pictures one at a time, and asked children whether each belonged between two others, before the others, after the others, or at about

the same time as any of the others. By using the sequence above, we initially presented children with what we considered an easy choice, followed by pictures whose correct placement necessitated placing some before, some after, and some between others. For each picture, we asked children to explain why they put the pictures where they did, and we frequently probed their explanations. After they had placed all the pictures, we asked when they thought each picture was from. Finally, we asked a series of questions designed to explore children's conceptions of history and the past and their own experiences with history. (See Appendix B.)

Analysis of responses

We transcribed interviews and developed a set of coding categories based on our initial impressions of children's responses; categories included use of technological clues, use of social clues, use of general time categories, and so on. We had little success attempting to code the interview transcripts using these categories, since it was the overall pattern of individual children's responses—rather than discrete sentences—which provided the greatest insight into their thinking. As a result, we abandoned the attempt to code transcripts in favor of a strategy of holistically analyzing each interview and generating inferences based on the trends in each student's responses. Our conclusions fell into two broad categories—the way in which children make temporal distinctions, and the way in which they used visual clues. This paper focuses on the former concern.

Some kindergartners and first-graders gave explanations so sparse, unclear, or fanciful (albeit entertaining) that we gained little insight into their understanding of historical time. Kindergartner Vicky, for example, placed the West picture before the 1950s picture but explained her placement only by saying, "Cause it's old"; she then placed the 1920s picture between the other two and said simply, "It's new"—

and then declined to do any more. Kindergartner Carrie worked through the entire set but explained all her placements simply by describing the people in them. She thought the West picture was older, for example, because it has "men and ladies and horses and a boy and a little girl," while the 1950s picture was newer because "it gots people and girls." First-grader Jonah, meanwhile, made up elaborate stories—replete with names—about the people in all the photographs, and later noted the task was easy because he "just guessed all this." The lack of explicit comparison between the pictures—or even any clear reference to the content of the pictures—prevented these responses from providing much insight into children's understanding of the past.

All children, however, appeared to have *some* understanding of different time periods; every child interviewed, for example, placed the West picture before the 1950s, and nearly every child gave an explicit comparison of the two. First-grader Bambi, for example, noted that "I think this [West] would go first because they had horses and carriages and long dresses back then, and this would go now because they don't." Even Kindergartner Anthony, whose responses were generally too unrealistic to provide any clue as to his understanding of chronology—he consistently pointed to the "colors" in these black-and-white photos as the reasons for his placement—did note that the 1899 picture was "a little closer to now [than the West picture]...because we're in school," and that the modern picture "*is now*." We found no evidence, then, that any child was unable to make at least some temporal distinctions and explain them in a simple way.

Fortunately, most children responded completely enough for us to make more extensive inferences about their understanding of time. Our research generally confirmed earlier findings that younger children use relatively broad categories of historical time, which become progressively differentiated with age. Even children

in second grade and younger typically placed each picture in a linear sequence, but their explanations often failed to indicate any clear differentiation of pictures from those which surrounded them. In some cases, children simply worked outward from the first two pictures: they placed pictures they considered close to now on one side, pictures they considered long ago on the other side. More frequently, children placed pictures in a variety of places—before, after, or between those they had already placed—but instead of explaining why they were older or newer than the others, either simply described the pictures or compared them to the present.

First grader Jameela, for example, placed the 1899 picture next to the Depression picture, but did not compare it to any of the other pictures; she explained her placement simply by describing it: "It has kids and it has grownup teaching class. Its got sticks, kids, teachers, chalk." Similarly, second-grader Christine placed the 1960s picture between the 1899 and Depression pictures, but only noted, "Lots of people are having a war, and they're fighting and all that." More frequently, children explained their placements by comparing pictures to the present day, rather than the other pictures in the sequence. Bambi laid most of the pictures in linear order, for example, but simply explained how they differed from now rather than establishing their position relative to each other. She placed the Antebellum picture after the West picture, for example, "because the people had like big ships and trains back then and they had buildings and not houses like us"; when asked why she thought it was newer than the West picture, she did not respond. Similarly, she placed the Depression picture with the West because "they don't, like, have regular, things in their house...they don't have like electricity, like we do, and chairs like we do, and sometimes they have to, like, share beds."

Neither describing a picture nor comparing it to the present establishes its location in the sequence; thus although linear placement gave the illusion of

differentiation, children's explanations indicated that they simply were placing pictures into a general time period together with others they considered to be from about the same time. Children may, of course, have understood more about the relative position of the pictures than they were able to explain; but since a single child sometimes did differentiate a picture from those which surrounded it and sometimes did not, we took failure to do so as an indication that the image did not represent for the child a distinct temporal period but rather another example of a previously-identified period. We frequently probed children's responses in order to try to get them to make more complete differentiations—we asked them, for example, how the features they described helped them know when the picture was from, or how they knew it was older or newer than the pictures on either side—but these probes were almost always met with silence, and children often appeared so uncomfortable with the question that we abandoned it for fear they would stop responding altogether. We took this as further evidence that students did not perceive temporal differences among some pictures.

Children's temporal distinctions

Kindergarten through grade two

The most basic temporal distinction children made was that between "long ago" and "close to now." Several kindergartners and first-graders explicitly or implicitly categorized all pictures as belonging to one of these two times. Kindergartner Monte, for example, placed the West and Antebellum pictures together and noted that "they're both old." Kindergartner Anthony, after laying out the entire set of pictures, noted that "all of these [older pictures] are back in the old days, and these [newer pictures] are back in the new days." These children often

used features with which they were familiar from the present to explain why pictures were newer, and features no longer found as evidence of their being from long ago. First-grader Jameela, for example, placed the Depression picture closer to now because “they have shoes, they have socks, they have shirts, they have sheets.” Similarly, she considered the 1960s picture closer to now because “we still have guns, we have people, we have trees and buildings.” She thought the Antebellum picture was older, though, because “they don’t have no shoes, they have different flags,” and similarly noted that in the colonial picture “they ain’t got any shoes on, they have different kinds of trees, they have wooden houses.”

First-grader Candi exhibited this dichotomous categorization more clearly than any other child. For each picture, she explained either why it was in “the olden days” or what feature we have now that they didn’t have “in the olden days.” For her, the 1899 picture was from now because “there wasn’t any schools in the olden days, they just had to do work in the olden days”; similarly, the antebellum picture was from now because “there wasn’t no city in the olden days,” and the 1960s picture was from now because “there wasn’t war in the olden days, and there was war now, and in the olden days there was peace, now there’s not.” For Candi, only the West and Colonial pictures were from the “olden days,” the former because “there’s a carriage, and the people are wearing old clothes from the olden days,” and the latter because “they didn’t have the building, now, they had to build them in the olden days.”

This dichotomous characterization of time—with the past being perceived as lacking all features present now—lends some support to Oaken and Sturt’s claim that young children lump together the past into an undifferentiated time, maximally different than the present. Children whose categorization was as simple and straightforward as this, however, were in the minority. Several kindergartners and

first graders—and all second-graders—divided the pictures into more numerous categories by explaining not simply how they related to the present, but how they related to each other. Although these children continued to place many pictures together, they appeared to have broken down the categories of “close to now” and “long ago” into somewhat more finely differentiated periods. In particular, children recognized some pictures as being either *older* than the other old pictures, *newer* than the other new pictures, or *between* the old and new pictures. Most children made more than one of these differentiations.

Many children recognized one picture—usually the Colonial—as being older than the others. First-grader Bambi, for example, who had failed to distinguish between the Antebellum, West, and Depression pictures, nonetheless explained that the Colonial picture was older than all the others “because they’re wearing rags, and not like clothes that everybody else in the pictures do.” Similarly, kindergartner Mickey pointed out that the Colonial picture was older because “they don’t got nothing to wear ‘cept those clothes.” First-grader Mindy, meanwhile, explained that the Colonial picture was oldest “cause there isn’t anything to move and they walked all the time” and the houses are “kinda open.” And first-grader Francie explained, “Oh I think that goes waaay down there, cause these people [in more recent pictures] are wearing clothes all over their bodies, but these are wearing one clothing that goes across their waists like this.”

Many children also noted that the Modern picture was more recent than the others, and several of them explicitly identified it (especially because of the cars) with the present. Kindergartner Mickey, for example, pointed out that it was the most recent “‘cause they got new cars.” First-grader Mindy also pointed out that it was the most recent “because the cars look a little bit more like they do now than these other pictures [1950s and 1920s].” And first-grader Francie explained, “This

is like the Herald-Leader [the building in the picture]. We have that right now, like our kind of thing. The cars, they're like these cars, and those cars are old cars [1920s and 1950s], but this is a Toyota."

Others children recognized that the 1920s picture occupied a middle position between the West and the 1950s. Having in most cases already explained that a picture with a car is newer than one with a horse and buggy, these children typically noted that the car was different than the one in the 1950s picture. Kindergartner Melody, for example, explained that the 1920s pictures goes in between because the car in it is "really old," while the 1950s one is "just old." First-grader Mindy also noted that the 1920s picture is older because the car "looks different, and the wheels are different," and second-grader Darrell explained "this is an old car; between this car and this car, this one seems old."

Grades three and four

While children in kindergarten through second grade usually made one, two, or three distinctions beyond "long ago" and "close to now," by third grade nearly all children made at least three distinctions—and two third-graders also differentiated the oldest three pictures from each other. Like younger children, though, third-graders failed to distinguish several pictures from the others, and resorted to description or comparison to the present. By third grade, then, a clear pattern had emerged: all children differentiated an "older" from an "old" category, a "now" from a "close to now" category, and a "middle" category between "old" and "close to now." Although some children differentiated the "old" category even further, no children attempted to differentiate the pictures in the "middle" category. All children at this age continued to employ broad categories of historical time in which some pictures—West and Antebellum, 1899 and 1920s, Depression and

1950s, or some other combination—were lumped together without explicit comparisons and either simply described or compared to the present.

Some fourth-graders continued to exhibit this pattern of differentiating categories in the middle and at each end but lumping together other pictures. Others, however, attempted to make more differentiations than younger children had—a pattern that would continue through the upper grades. These children compared pictures with each other much more frequently than third-graders, although their comparisons often were vague or imprecise. Amber, for example, not only distinguished among each of the three oldest pictures, but tried to differentiate the 1899 picture from the Depression picture by noting, “There are newer classrooms.” Similarly, she placed the 1960s picture between the 1920s and 1950s pictures “because that picture kinda looks like that one, and that one.” Cathy explained her placement of the 1960s picture by saying, “Well, because they have big buildings just like these [in the Modern picture], and I don’t really think they really had them big like that around these two [Depression and 1950s] so I think it came before that, and guns and the men right there...they just look like they’re been, this one’s been more recent than these two before.”

Other times, children’s attempts to compare pictures resulted in little more than description. Deanna, for example, explained, “I think this one, the one with the horses, came a little bit before this one [Antebellum] because, well actually, they came about the same, but they have basically the same clothes, but I think its a little bit longer, I mean after this one because they have a bottle of ginger ale and they have a parade back here and it looks back here like a gambling or an auctioning off or something and it looks like this, its more a city.” Although her explanation did not differentiate the pictures very clearly, this child was nonetheless concerned with making a temporal distinction, the amount of background knowledge which she

could employ explicitly, however, was not adequate to the distinction she wished to make. Some fourth-graders also seem to have realized that simple descriptions or comparisons to the present were insufficient to establish a picture's place in the sequence, and thus were more likely not only to attempt comparisons but to say, "I don't know" when questioned why they placed a picture where they did.

Grades five and six

The concern with comparisons increased among fifth- and sixth-graders, as many children attempted to differentiate all or most pictures. Rather than the general or vague observations of fourth-graders, though, fifth- and sixth-graders frequently used specific historical information to compare pictures. Fifth-grader Greg, for example, placed the Antebellum picture after the West because "there's buildings in it, and this is when the people were moving west, and this one would be after, because they didn't make gin until after they had settled down." Fifth-grader Evan, on the other hand, placed the two pictures in the opposite order because "the photographs came in the 1840s or 50s or 60s, and the paintings are back before that." And Fifth-grader Tina explained her placement of the 1899 picture by noting "I don't have [the American Girls doll's] desk, but Samantha was in the very early 1890s and she had a desk like that. It was about 1907. And also the way that they're dressed the same, the girls are wearing long dresses with stripes, and the boys the same thing." Children's background knowledge was not always accurate or relevant, but such references—rare among younger children—was a nearly constant feature of the responses of most fifth- and sixth-graders.

Many children by fifth grade also used dates—especially the names of decades and centuries—to compare pictures. Fifth-grader Rodney compared the 1920s and 1950s pictures by observing that "in the thirties and twenties, that's

when the cars like these start coming out, and these cars come out in the sixties"; he later explained his placement of the Depression picture by noting that "this one is mostly in the fifties and forties cause that's when they had radios, and they would be either knitting like the mother's doing in the picture and the father would be reading a newspaper and they [the children] would be like reading the funnies paper." Sixth-grader Patricia first put the 1960s picture between the 1920s and 1950s pictures and explained, "Well, it looks like that there's a lot of chaos going on, and it looks like it's probably like a scene from about the sixties or the fifties, during like Vietnam time." She then changed it to after the 1950s picture "because this one looks like it's not as old as this one, because it looks like it's in the sixties, and that one looks like, the other pictures looks like it's from the fifties." For these children, the use of dates substituted for direct comparisons between pictures: once a child established one picture as "the sixties" and another as "the fifties," that is, no further comparison was necessary to establish their relative position.

Despite their use of explicit historical knowledge, however, many fifth- and sixth-graders still failed to make explicit comparisons between pictures. Sixth-grader Trent, for example, placed the Antebellum picture before the West "because this looks like something that happened in the east or something and then this looks like they're going on the Oregon Trail or something like that," but then placed the colonial picture at the same time as the Antebellum, "because of the slaves, like right there, they're gonna collect slaves or something." Moreover, this child maintained that the 1899, 1920s, Depression, 1950s, and 1960s pictures were from the same time, despite probes as to whether he thought some might be a little before or a little after. He gave reasons such as, "because like their styles of clothes, and like the designs of the furniture and stuff," "because of their styles of clothes and the classroom," "because it looks like the war in Germany or something like that, it

looks a little bit more like after Vietnam or something like that, or the war in Germany, World War II." Although he appeared to possess significantly more background knowledge than younger children, his differentiation of time categories was little more specific than the very youngest.

Summary

All children interviewed made some temporal distinctions, and the number and complexity of these increased across grade levels. While some young children lumped all pictures into general categories of "old" and "close to now," many made further distinctions—distinguishing some pictures as older than others, some as newer, and some as in-between. By third grade, nearly every child made all these distinctions, and thus displayed evidence of temporal categories that may roughly be labeled as "oldest," "old" "in-between," "close to now," and "now." Fourth graders attempted to make even further distinctions, though their comparisons were often very vague and exhibited limited background knowledge. Most fifth- and sixth-graders distinguished all or most pictures and make use of extensive background knowledge in doing so.

These findings, however, should not be interpreted as indicating a strictly age-related developmental sequence, for at both ends of the grade spectrum some children deviated significantly from this pattern. One kindergartner, for example, divided the nine pictures into seven distinct categories, while one sixth-grader lumped all pictures from 1899 to 1950 together into one period. Perhaps most importantly, this research examines children's interaction with only one specific set of pictures from American history; other sets of images—including, for example, pictures of pyramids or knights in armor—might yield substantially different results.

Time vocabulary

Children had difficulty describing historical periods with any precision. Across grade levels, children showed an increasing ability to draw upon specific background knowledge in assigning dates to pictures, but this ability lagged far behind their ability to differentiate the periods of time themselves. By third grade, for example, nearly all children differentiated at least five broad categories of historical time, but few could associate dates with any except the two most recent. As one fourth-grader put it, "The easy part was just putting them in order; the hard part was trying to decide what years, and when they happened."

Dates

Children in kindergarten through second grade rarely used dates spontaneously when discussing the pictures, and their unfamiliarity with them was apparent when we explicitly asked when they thought each picture was from. Many children either refused to participate in that part of the interview, said they didn't know, or gave only general responses (such as "long ago" for all but the most recent picture). Children who were asked to begin with the most recent picture and work backward participated somewhat less reluctantly, but those who were asked to begin with the oldest picture and work forward found the task so difficult that we abandoned that strategy early in the research.

Most of the children at this level who were willing to assign dates appeared to be guessing, and the dates they assigned for most pictures seemed to be chosen at random. Few children at this level linked the pictures with a knowledge of particular dates, nor did they take into account the relative temporal distance between pictures. One kindergartner, for example, identified the oldest three

pictures as 1493, 1390, and 1493 again, while a first-grader worked backward and assigned the dates 1991, 1990, 1889, 1552, 1551, and 1668. Another first-grader confidently identified the 1960s picture as being from 1993 but simultaneously noted that it was from a “long, long time ago.”

Some students appeared to misunderstand the numerical basis of dates. A kindergartner, for example, identified the contemporary picture as 1993 but then gave future dates (1995, 1996) for the older pictures. Others assigned dates that did not go in order. We took these responses as an indication that students did not understand that dates in the past are smaller than the present date, or that dates from late in time must be larger than those longer ago. Given the fact children at this age are still learning the meaning of numbers, it is hardly surprising that many did not understand this. Interestingly, though, all students who were willing to assign dates had internalized enough conventional terminology always to assign dates with four digits, and always to express those dates by using two two-digit numbers—“fifteen fifty-two,” for example.

By third grade, all children who were asked for dates were willing to assign them, and almost no one gave dates that contradicted qualitative descriptions or which did not follow in order. Only one child appeared to guess numbers at random, and most took their previous estimates into account in making each new designation. In addition, children at this level most often estimated dates by naming decades or centuries (“the 1950s” or “back in the 1800s”) rather than the more specific but seemingly random guesses (“1522”) of younger children. Finally, fifth- and sixth-graders often identified a range of possible dates for pictures, and frequently used conventional historical terminology such as “the late 1800s” and “late forties or early fifties.”

Children understood the mathematical meaning of dates, however, before most of them were able to relate those dates to specific historical information. Thus third- and fourth-graders rarely assigned dates spontaneously, and when explicitly asked for them, their estimates did not usually draw upon explicit background knowledge: rather than linking dates to specific periods represented by the pictures, many began with the most recent picture and worked backward in standard increments of time—increments which ranged from a few years to two decades. Like younger children, they did not take into account the relative temporal distance of the pictures, and thus assigned the same approximate interval to each. One child who separated each picture by only a few years, for example, was led by this strategy to place the antebellum picture in 1967 and the colonial picture in 1965; similarly, another who counted backward by one or two decades for each picture placed the West picture in 1920 and the colonial picture in 1899.

Other third- and fourth-graders followed this spacing strategy for the most recent pictures and then recognized that some of the older ones were separated by much larger increments. One third-grader, for example, worked backward by decades but then skipped to “the 1800s” for the antebellum picture, “1770” for the west picture, and “the zero year” for the colonial picture; similarly, another third-grader identified the 1899, Antebellum, and 1920s pictures as the 1700s, the West picture as 1600, and “something B. C.” for the colonial picture. Another placed each picture approximately twenty years apart, but then skipped to “1720” for the Colonial picture.

At all grades except kindergarten, however, some children assigned specific dates to each picture rather than simply spacing out their estimates in a systematic way. Even in the earliest grades, many children identified the contemporary picture with a date from the early 1990s (and most of those who did not use a date used

qualitative descriptions which indicated their understanding of its time—"right now," "not very long ago," or "February," for example) and by third grade, all children who were asked to date the contemporary picture said it was from the early 1990s or the late 1980s. In addition, a few of the youngest children, about half of the third- and fourth-graders, and nearly all fifth- and sixth-graders confidently identified the 1950s pictures as being from the 1950s or the 1960s.

By fourth grade, several children related many pictures to independent background knowledge rather than guessing randomly or using a standard interval, and these children came very close to the actual dates of the pictures. One fourth-grader estimated each picture to within ten years of its actual date (except the Colonial, which he reasonably placed in "the 1600s"), and other answers were nearly as accurate. By fifth grade and sixth grade, children's accuracy and confidence had improved greatly: they consistently identified the four most recent pictures to within a decade of their actual date, most placed the 1899 and 1920s pictures within two decades, and only one failed to place the West picture in the 1800s (usually in the 1870s or 1880s). The colonial and antebellum pictures still prompted the greatest uncertainty, with dates ranging from the 1500s to the 1800s for the former, the 1700s to 1915 for the latter.

Qualitative descriptions of time

From kindergarten through second grade, children's qualitative descriptions of time periods were very general: the most common expressions for periods in the past included "the old days," "a long time ago," and "back then." When children tried to differentiate these categories further, they created extemporaneous distinctions like "really old" and "just old," "sort of old, but not really," or "a long time ago," "a long, long time ago," and "a long, long, long time ago."

Third- and fourth-graders continued to use such general expressions and added others—"old-fashioned," "modern," "ancient," and "something B. C." A few also used expressions which associated pictures (sometimes inaccurately) with specific periods in history; expressions included "when the cowboys were around," "the old West," "the rockin' fifties," "before there was independence," "around when Columbus got here," "before the Civil War," "close to when Martin Luther King was," and "back when God was around and everything."

Fifth- and sixth-graders' also used expressions such as "like something you'd see on Happy Days," "it seems like that was Woodstock and everything," "like something out of Little House on the Prairie," "from the Civil War," "during slavery," and "back from the Revolutionary War." They rarely used the general terms—such as "back then"—which still predominated among third- and fourth-graders (except "modern," which they used even more frequently); their use of these general terms was replaced by the use of specific dates rather than qualitative descriptions of time periods such as "antebellum" or "colonial." These conventional periodizations were almost completely absent—a rare exception being sixth-grader Nedra, who noted that the Antebellum picture looked "Victorian": "I read some books about it, the American Girl books, and I have a Victorian dress at home."

Summary

Children's understanding of dates improved considerably across grade levels. From kindergarten through second-grade, children rarely demonstrated any knowledge which would allow them to assign dates to pictures, and some misunderstood the mathematical meaning of dates. This mathematical confusion had disappeared by third grade, but most children were still unable to draw upon background knowledge to assign dates—although several recognized that some

pictures were separated by a larger numerical interval than others. Children in fourth grade and above usually attempted to assess the dates of pictures by referring to specific historical knowledge, and fifth- and sixth-graders were adept at doing so. The ability to link pictures to this independent background knowledge occurred first with reference to the Modern and 1950s pictures, both of which children frequently identified with reasonable dates even before third grade. Use of qualitative descriptions of time, meanwhile, began as very general expressions, and in fourth-grade and above were replaced with either dates or associations with specific periods. These qualitative categorizations, however, were generally linked with the elements of popular culture rather than the periodization historians or textbooks might use.

Order of placement

Although we are primarily concerned with the way children conceptualize historical time rather than their ability to order specific historical periods accurately, the question inevitably arises, "Did they get it right?" Phrased this way the query is unanswerable: since children placed pictures according to their own conceptualizations of time, comparing specific placements to adult standards is meaningless. If a child has only two temporal categories ("long ago" and "close to now"), for example, the placement of any individual picture cannot be construed as correct or incorrect—only as a manifestation of that children's temporal understanding: failure to place the 1920s picture between the West and 1950s picture would not necessarily constitute a failure to recognize that it comes between but rather would represent the child's lack of an "in between" category. It is the

categories themselves, rather than the order in which pictures are placed, which most productively can be compared to adult expectations.

That is not to say, however, that children's responses provide no insight into what they know or don't know about historical periods; indeed, two important aspects of their responses shed light on that understanding. First, responses can be compared to each other; consensus in placing a single picture indicates a shared body of temporal understanding, while diverse placement indicates differences in understanding. Second, when children make explicit comparisons among pictures (rather than lumping them together), those distinctions can be compared to the actual chronological order of the pictures; when children's distinctions do not match that order, it may indicate either a lack of knowledge about historical periods or an alternative means of conceiving their relationship.

As previously noted, all children made a distinction between the first two pictures—1950s and West—and every child identified the West picture as being older. Although not all clearly placed the 1920s picture into a separate category, nearly every child who did so placed it between the first two. Children also showed widespread agreement on the Colonial picture: at all grade levels, it was placed with the oldest pictures, and when it was differentiated from them it was usually identified as the oldest. There was even more consensus on the Modern picture: it was always placed with pictures closer to now, and when differentiated from the others was always identified as the most recent. All of these placements, of course, conform to the actual temporal order of the pictures. It should also be noted that children never placed any of these pictures in ways that adults would consider wildly inappropriate: the Colonial picture was never placed with or after a picture with cars, for example. Thus for pictures which fell into these general time categories—"oldest," "older," "in-between," "close to now," "now"—children's

placement showed substantial agreement with each other and with the correct chronological order.

Children also displayed consensus on the Depression picture, although they generally did not differentiate it as completely as adults would. A few (particularly before third grade) placed it in a middle category with the 1920s picture, but most considered it "close to now" and did not distinguish it from the 1950s picture. Several children noted that it had to be close to now because the people in the picture had newspapers, comics, or clothes like ours. Third-grader Thomas, for example, said "it goes at the end because it looks like now, cause I do that at home a lot....I like read the comics with my brother, and my mom and dad watch the TV and read the newspaper." A few children, however, noted that it was not completely modern: first-grader Bambi observed that they don't have electricity, while second-grader Johnetta thought it was "sort of old, but not really." By fifth and sixth grade, several children had begun to identify the picture as specifically predating the 1950s picture. Fifth-grader Evan, for example, noted that "I think this was like in the 1930s or 40s just because of the clothes and ...their shoes and their sewing machine," while sixth-grader Nedra noted that it went between the 1920s and 1950s pictures because "it looks like its from World War II. It looks like pictures of things from that time, the way the kids are dressed, the shoes."

Slightly less consensus existed with the 1899 picture. Although this picture of a schoolroom regularly elicited a great deal of interest and frequently revealed specific background knowledge, children rarely explained clearly where the picture went or what differentiated it from surrounding pictures. Before third grade, most children placed it into an undifferentiated middle category with the 1920s picture, and older children either placed it with the Antebellum or West pictures or between those and the 1920s picture. Third-grader Thomas, for example, placed it with the

Antebellum picture because "they're all dressed up and they had to dress up in school and look good, and in this picture [Antebellum] there's a lot of dressed-up people." Although many fifth- and sixth-graders were explicit about placing it after the West or Antebellum and before the 1920s pictures, a great deal of variation existed even then: some placed it with the 1920s, Depression, or 1950s picture. Sixth-grader Gage noted, "Oh, that's definitely from the forties...if you look at the desks they had those fancy things on the side of it; if you look at the teacher, the way she's dressed, at the arms and sleeve, and the bow on the back of her dress, and the way the little girls are dressed and guys in suits or something."

The Antebellum and 1960s pictures revealed the greatest inconsistency both among children and with their actual order. Before fifth grade, nearly every child who explicitly differentiated the Antebellum picture placed it *after* the West; fifth- and sixth-graders were evenly split on whether it belonged before or after. Children who placed it later than the West gave very similar answers, most of which focused on its more settled nature. Second-grader Darrell, for example, said, "Well, here they're just off in the wild west, and now [in the Antebellum picture] they have stores and big ships." Third-grader Tamar observed, "They'd probably just have a little farm back then [West], but here it's like a big city, like now." Fifth-grader Greg thought the Antebellum picture came later because of the buildings and because "they didn't make gin until after they had settled down." Among fifth- and sixth-graders, though, several observed the sign in the picture proclaiming the "61st anniversary of our independence" and concluded that it must date from the early 1800s; having already noted that the West picture came from the late 1800s, they thus placed the two pictures in the correct order. Several others noted that since the Antebellum picture was a drawing rather than a photograph, it had to come before the later pictures, all photographs.

The consistency with which children explained their placement of the Antebellum picture as coming after the West suggests a unilinear image of historical progress. They appear to think that any particular time is characterized by only one image, and that these images stand in a definite temporal order: first there were pioneers, then there were cities. Only one child, a sixth-grader, suggested that the Antebellum and West images might occur in different geographic locations rather than at different times. Indeed, even children who justified a correct placement by referring to the invention of photography showed the same perspective: they noted that the drawings had to come before the photographs—thus ignoring the fact that pictures were still drawn after the invention of photography. This conclusion is, admittedly, highly tenuous—the sequencing called for in the task itself almost forces such unilinear placement—yet the infrequency with which children suggested any other alternative suggests that this may be a fruitful question for further investigation.

The 1960s picture yielded the most inconsistent placements. Between kindergarten and fourth grade, children seemed to place this picture almost at random: about half placed it in an undifferentiated middle category, while the rest were split evenly between placing it with the oldest and most recent pictures. Their explanations, moreover, almost never identified the picture as belonging to any specific time. First-grader Billy, for example, said, "All of those soldier mans with those guns and those helmets...they used to have like that"; similarly, second-grader Daniel explained his placement by saying, "Because they started an army," and fourth-grader Ryan observed, "It looks like it was when a war was going on or something." A few children noted that it looked like the Civil War (perhaps the only war they could name), but only one suggested that it could be a more contemporary protest: third-grader Tamar said, "It looks close to where Martin Luther King

was...The guns, the people and the big building right there. The people are in a crowd, and maybe listening to someone like Martin Luther King at a speech." First-grader Candi's response was interesting in its uniqueness: she placed it close to now because "there wasn't war in the olden days, and there was war now, and in the olden days there was peace, now there's not."

Few fifth- and sixth-graders, however, placed the 1960s picture with the 1920s or before; most either placed it before the Modern picture or placed it before the 1950s and Depression pictures. Those who placed it correctly often gave explanations which demonstrated accurate knowledge of the period. Fifth-grader Evan, for example, identified it as being from the sixties or seventies because "you have like protests about like race or something...it could be about like black rights, but I don't see any black people, but I guess they could be carrying the signs." Sixth-grader Caitlin, meanwhile, noted, "It seems as if it were a protest of some sort and I don't know why, but when I think of protesting what's going on I think of the seventies. it seems like that was Woodstock and everything, plus the style of dress, the bright striped shirts." Children who placed the picture before the Depression and 1950s pictures, though, often thought it was from World War II. Sixth-grader Nedra, for example, said, "It looks like some war. like World War II maybe, like they look a little like German soldiers," and fifth-grader Celia observed, "it looks like it's over in Germany or some place like that, and they're always fighting and things, but they've started to calm down." Fifth-grader Tina, on the other hand, thought the people looked Japanese and concluded that it had to be a picture of either Vietnam or the bombing of Pearl Harbor.

Summary

At all ages, children's placement of most pictures revealed substantial agreement with each other and with the correct order. In particular, the Colonial, West, 1920s, 1950s, and Modern pictures showed little deviation even among young students. Although somewhat less consensus existed with the 1899 and Depression pictures, most children placed these close to their correct position. The fact that seven of the nine pictures were consistently placed correctly or nearly so points to a substantial body of historical knowledge among children, despite temporal categories less finely differentiated than adults'.

The greatest inconsistencies occurred when children placed the Antebellum and 1960s pictures. Although children invariably identified the Antebellum picture as belonging at the older end of the sequence, they usually placed it after the West picture because it appeared more settled; that pattern raises interesting questions about the extent to which children recognize the diversity of images which might characterize any one historical period. Children placed the 1960s picture randomly at fourth grade and below, and some fifth-graders placed it before the Depression and 1950s picture. Their explanations indicate that the presence of soldiers and guns was particularly confusing; many felt sure that these identified it as being from the time of a specific war, but they weren't sure which one or when it was. Their confusion suggests that although they consider wars a highly salient aspect of historical images, they have little ability to identify such conflicts in time.

Conclusions

The use of visual images with a variety of chronological clues taps into a wider variety and greater depth of historical understanding than verbal tasks which

evaluate children based on their familiarity with dates or famous people. Children interviewed using these images thus demonstrated significantly greater understanding of historical time than previous research has shown. Every child we interviewed distinguished among historical time periods, and across grade levels their distinctions became increasingly numerous and refined. Furthermore, the extent to which children's placement of pictures agreed with each other and with the correct order indicates a substantial body of shared historical knowledge.

Children's use of adult temporal vocabularies, however, were not as well developed as their understanding of change over time. Students younger than third grade often did not understand the numerical meaning of dates, although many had internalized the conventions for verbalizing them; even third- and fourth-graders—who more clearly understood their mathematical basis—usually did not associate particular dates with historical images (with the notable exception of recent dates and the 1950s/1960s). Only by fifth-grade did most students draw widely upon specific knowledge in assigning dates to pictures. Use of qualitative vocabulary—such as conventional time periods—was similarly restricted: general categories predominated until students were able to use dates accurately, and conventional periodization was almost completely absent (cf. Saxe, 1992).

Thus although children have a significant body of understanding of historical chronology, they neither categorize that understanding in the same way as adults nor use the same terminology. We see a number of clear instructional implications in these findings. On the one hand, it can no longer be maintained that students have no ability to understand history before fourth or fifth grade; even very young children can and do make temporal distinctions and have some knowledge of how things were different in the past (cf. Brophy, VanSledright, and Bredin, 1993). History instruction in elementary school therefore might productively focus

upon helping students refine and extend the knowledge they have gained about history; the use of visual images in particular should greatly extend the ability of instruction to build upon students' previous knowledge.

On the other hand, historical information which relies upon dates or conventionally named periods is unlikely to activate children's temporal understanding. There is little reason to expect that using a date (except from the recent past) will call forth any specific historical image or understanding on the part of children before fifth grade. Children at the upper elementary level have more specific associations with dates, but their use of qualitative periodization (such as "the Colonial era") seems to arise more from the elements of popular culture than the disciplinary categories found in textbooks. Using adult temporal vocabularies in conjunction with visual images seems much more likely to activate specific temporal associations than employing such terminology divorced from richer visual or descriptive contexts.

These findings also call into question the central role many historians, educators, and textbooks assign to chronology in learning history. Despite an almost complete lack of association between dates or periods and historical images, young children have built up an impressive body of historical knowledge and understanding; because that knowledge is drawn from a variety of sources and used for a variety of purposes, however, it is rarely categorized or characterized in the same way as the content of formal history curricula (cf. Levstik and Barton, 1994). This research thus indicates that historical understanding can develop independently of conventional adult temporal vocabularies, and suggests that the primacy of dates and blow-by-blow chronologies in history instruction be de-emphasized in favor of more important historical content and reasoning.

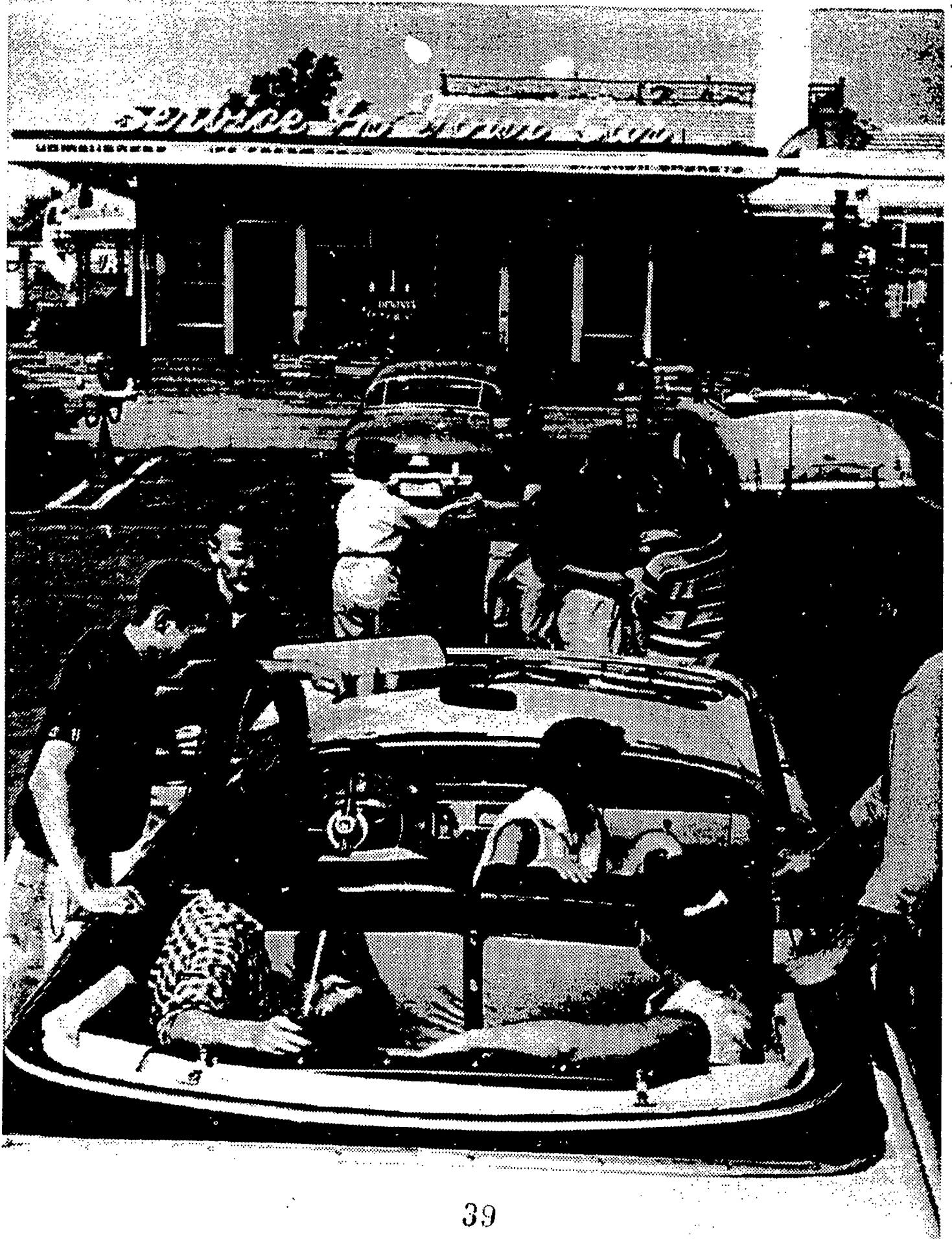
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Appendix A

Materials

Picture 1a



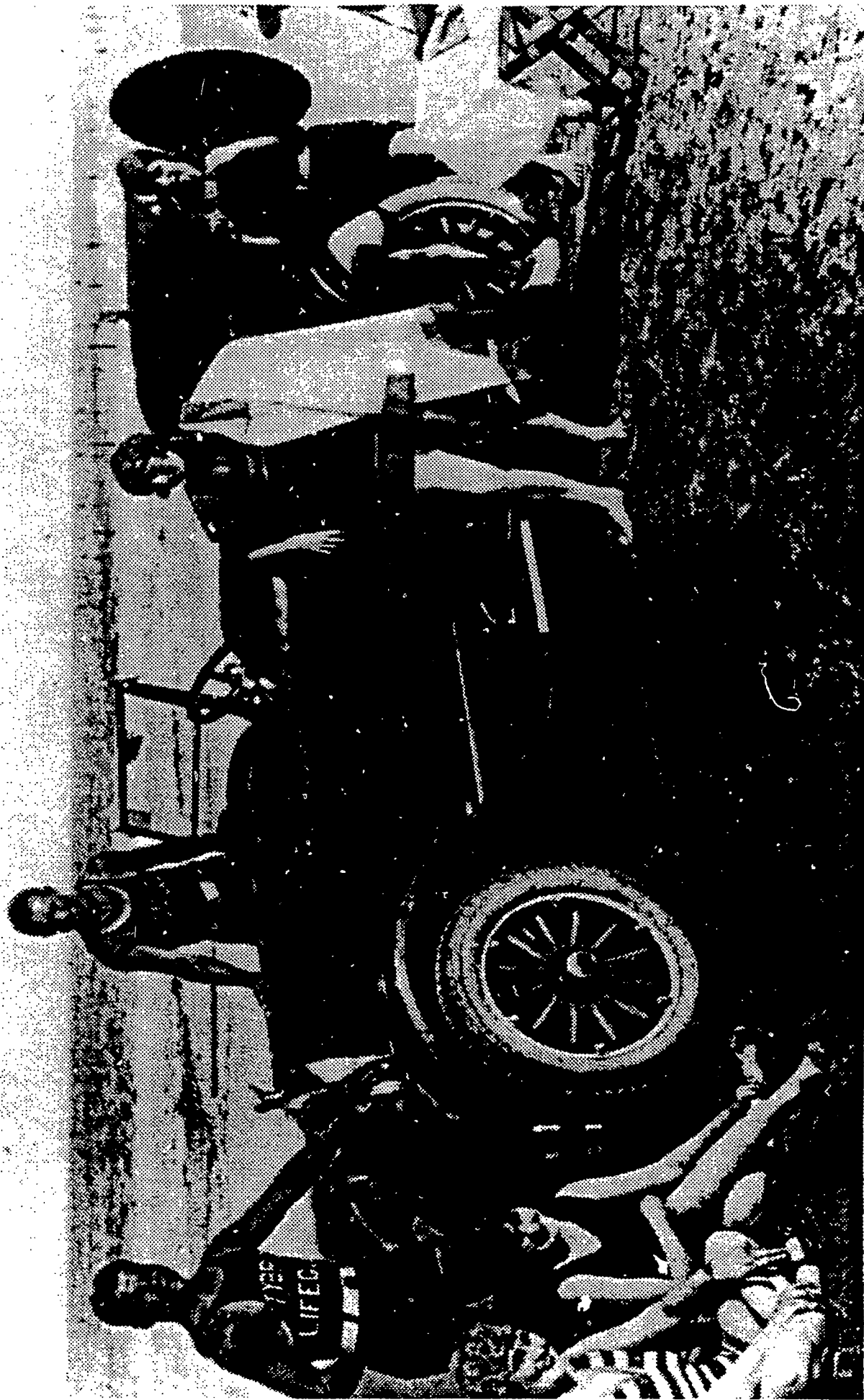
Picture 1b



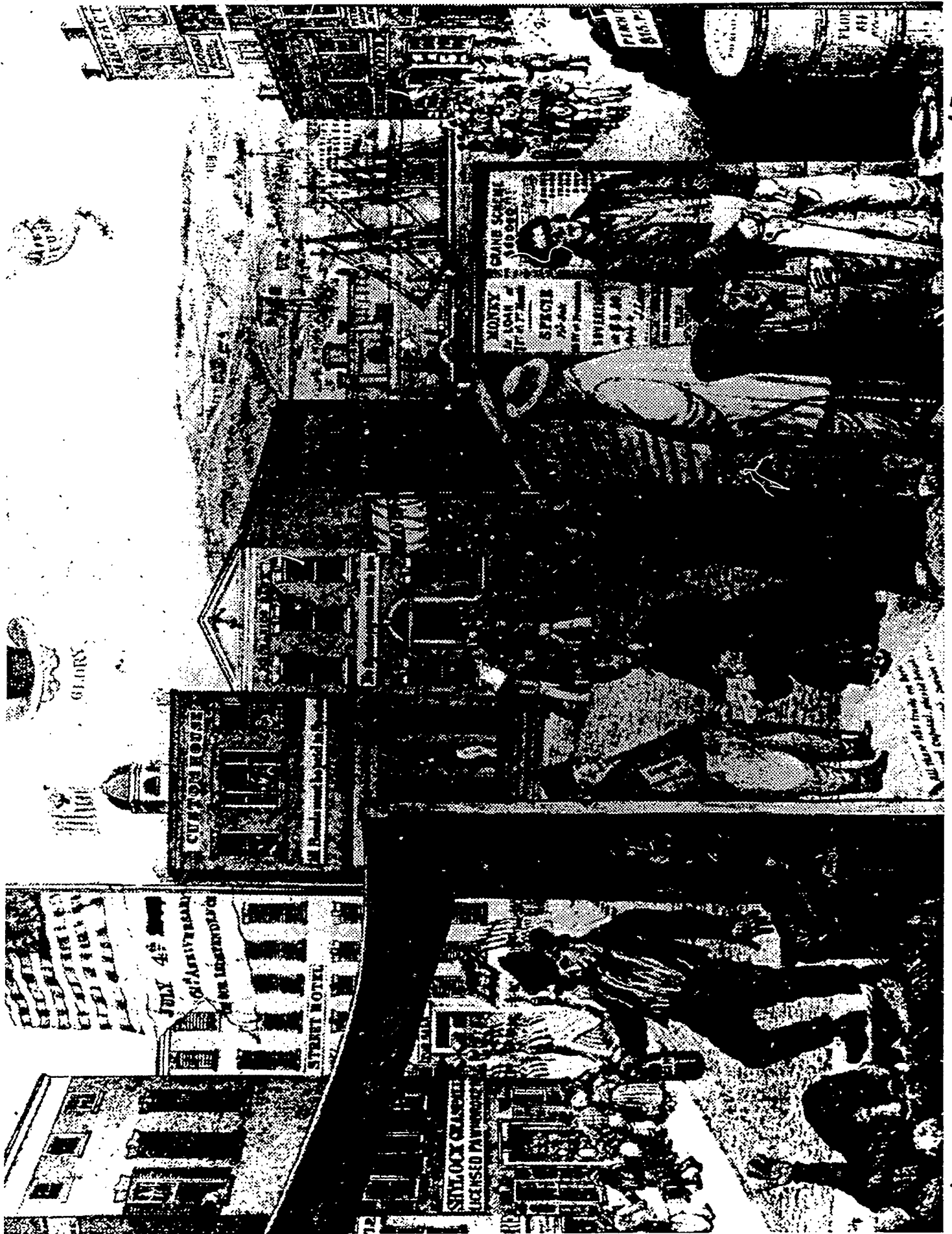
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Picture 3



Picture 4

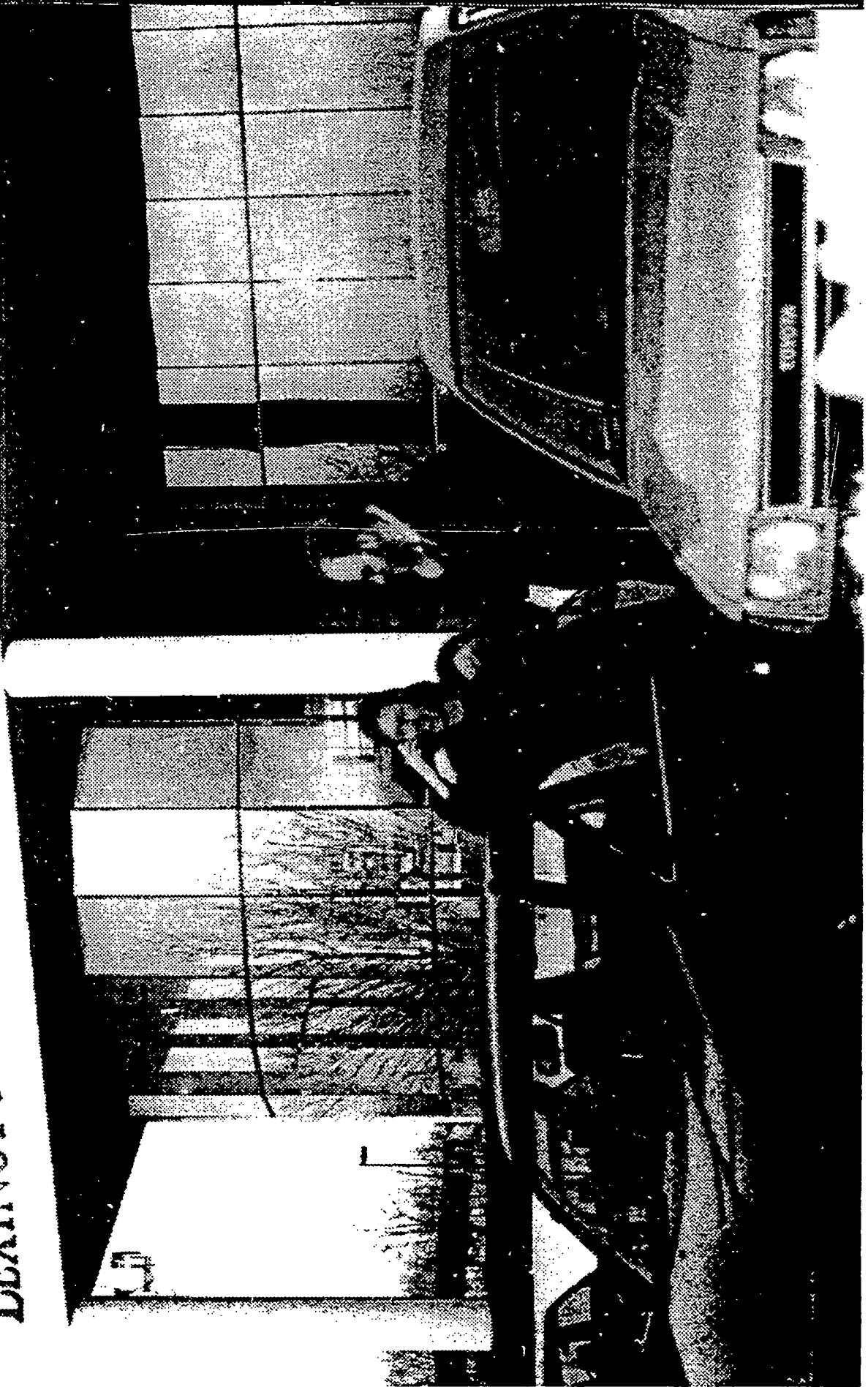


Picture 5





LEXINGTON HERALD-LEADER



Picture 8 (division not in original)



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Appendix B

Interview Protocol

After introducing self to child and obtaining assent, say:

Here are two pictures from different times. Take a few minutes to look them over. You may not know exactly what is going on in each picture. That is all right. I'm not interested in whether you know exactly what the picture is, but in how you decide how old the picture is or about when the picture could have happened. There are two things I would like you to do with these first two pictures on the table. First, I would like you to put these two pictures in time order. Please start with the picture that is from the longest time ago (point to the child's left), and then put the picture that is the closest to now right here (point to child's right). You can start in just a moment. Second, while you are putting the pictures in order, I would like you to think out loud about why you are putting them in that order. What I mean is, I want you to explain to me what you are thinking while you are doing it. What things in the picture help you to decide which picture happened longest ago, or most recently? Do you have any questions before we start? (Do not answer questions about pictures.) Remember to tell what you are thinking as you are putting the pictures in order.

Once the child has completed the first part of the task, say:

Now I have some more pictures. I am going to give them to you one at a time. For each one, tell me where you think it goes—in between two of them or at about the same time as one of them. Explain why you put them where you did, just as you did with the first two pictures. Do you have any questions about what you will be

doing? (Stop adding pictures if child expresses frustration or can't complete the task.)

Once the child has placed all the pictures, say:

Now that you have done all of them, are there any pictures you would like to move around? If you do, explain to me why you are moving them.

Point to each picture and say:

When do you think this is?

End of task questions:

1. Did you think this was easy or hard to do? What things made it easy or hard?
2. Which pictures did you think were the easiest to figure out? Why? Which pictures did you think were the hardest to figure out? Why?
3. Which pictures did you think were the most interesting? Why did you like that one (or those)?
4. Now that you have looked at all of these pictures, what can you tell me about how things have changed over time?
5. What can you tell me about how things were different a long time ago?
6. What is history?
7. What is the past?
8. What is the difference between history and the past?
9. What kinds of things have you learned about history or the past or long ago in your classroom?
10. Have you every learned about history or the past or long ago outside of school?